

Docket No. 0044-0273P

Appl. No.: 10/808,514

Art Unit: 1734

Amendment dated November 10, 2004

Reply to Office Action of August 10, 2004

Page 3 of 22

AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A double-side lamination system comprising comprising:

a card having an upper surface and a reverse surface;

a thermocompression bonding means device for selectively laminating
laminate films each having a heat adhesive layer on a surface, on at least one
of the upper surface and the reverse surface of the card both surfaces of a
card,

a pair of heat rollers for applying heat and pressure to the card using a
pair of heat rollers,

at least one temperature sensing element wherein temperature
measurement means for measuring temperatures of said heat rollers are
provided, and

a controller including

a heater temperature control part for operatively controlling
heaters for said pair of heat rollers;

an arithmetic processing part controlling whether said double-side
lamination system is in a double-side lamination mode in which
laminations are carried out on both surfaces of said card, or in a single-
side lamination mode in which lamination is carried out on only one of

said surfaces of said card, said arithmetic processing part being operatively connected to an output terminal of said at least one temperature sensing element to is automatically distinguished distinguish between the double-side lamination mode and the single-side lamination mode by comparing measured temperatures of said heat rollers by said at least one temperature ~~measurement means~~ sensing element at a predetermined time after turn-on of the power of said double-side lamination system with a predetermined reference temperature.

2. (ORIGINAL) The double-side lamination system according to claim 1, wherein if one of said measured temperatures of said heat rollers is lower than said reference temperature, then lamination is not carried out for said surface of said card facing said roller of which said measured temperatures is lower than said reference temperature, and single-side lamination for laminating another surface of said card using another said heat roller is automatically carried out.

3. (CURRENTLY AMENDED) The double-side lamination system according to claim 1, wherein whether said double-side lamination system is in

said double-side lamination mode or in said single-side lamination mode is displayed on a control panel of the controller.

4. (CURRENTLY AMENDED) The double-side lamination system according to claim 2, wherein whether said double-side lamination system is in said double-side lamination mode or in said single-side lamination mode is displayed on a control panel of the controller.

5. (CURRENTLY AMENDED) The double-side lamination system according to claim 1, further comprising a drive system control within said controller, wherein a the drive system control of a laminate film transfer path is automatically changed according to whether said double-side lamination system is in said double-side lamination mode or in said single-side lamination mode.

6. (CURRENTLY AMENDED) The double-side lamination system according to claim 2, further comprising a drive system control within said controller, wherein a the drive system control of a laminate film transfer path is automatically changed according to whether said double-side lamination

system is in said double-side lamination mode or in said single-side lamination mode.

7. (CURRENTLY AMENDED) The double-side lamination system according to claim 3, further comprising a drive system control within said controller, wherein a the drive system control of a laminate film transfer path is automatically changed according to whether said double-side lamination system is in said double-side lamination mode or in said single-side lamination mode.

8. (CURRENTLY AMENDED) The double-side lamination system according to claim 4, further comprising a drive system control within said controller, wherein a the drive system control of a laminate film transfer path is automatically changed according to whether said double-side lamination system is in said double-side lamination mode or in said single-side lamination mode.

9. (CURRENTLY AMENDED) The double-side lamination system according to claim 1, wherein said controller distinguishes a type of said heat roller mounted is distinguished within said system by a value of temperature of

Amendment dated November 10, 2004

Reply to Office Action of August 10, 2004

Page 7 of 22

said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.

10. (CURRENTLY AMENDED) The double-side lamination system according to claim 2, wherein said controller distinguishes a type of said heat roller mounted ~~is distinguished~~ within said system by a value of temperature of said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.

11. (CURRENTLY AMENDED) The double-side lamination system according to claim 3, wherein said controller distinguishes a type of said heat roller mounted ~~is distinguished~~ within said system by a value of temperature of said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.

12. (CURRENTLY AMENDED) The double-side lamination system according to claim 4, wherein said controller distinguishes a type of said heat

Amendment dated November 10, 2004

Reply to Office Action of August 10, 2004

Page 8 of 22

roller mounted ~~is distinguished within said system~~ by a value of temperature of said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.

13. (CURRENTLY AMENDED) The double-side lamination system according to claim 5, wherein said controller distinguishes a type of said heat roller mounted ~~is distinguished within said system~~ by a value of temperature of said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.

14. (CURRENTLY AMENDED) The double-side lamination system according to claim 6, wherein said controller distinguishes a type of said heat roller mounted ~~is distinguished within said system~~ by a value of temperature of said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.

Docket No. 0044-0273P

Appl. No.: 10/808,514

Art Unit: 1734

Amendment dated November 10, 2004

Reply to Office Action of August 10, 2004

Page 9 of 22

15. (CURRENTLY AMENDED) The double-side lamination system according to claim 7, wherein said controller distinguishes a type of said heat roller mounted ~~is distinguished~~ within said system by a value of temperature of said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.

16. (CURRENTLY AMENDED) The double-side lamination system according to claim 8, wherein said controller distinguishes a type of said heat roller mounted ~~is distinguished~~ within said system by a value of temperature of said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.

17. (NEW) A double-side lamination system comprising:
a card having an upper surface and a reverse surface;
a pair of laminate films each having a heat adhesive layer on a surface thereof;

Docket No. 0044-0273P

Appl. No.: 10/808,514

Art Unit: 1734

Amendment dated November 10, 2004

Reply to Office Action of August 10, 2004

Page 10 of 22

a thermocompression bonding device for selectively laminating the laminate films on at least one of the upper surface and the reverse surface of the card;

a pair of heat rollers for applying heat and pressure to at least one of the upper surface and the reverse surface of the card;

at least one temperature sensing element for measuring temperatures of said heat rollers, said at least one temperature sensing element being slidably connected to a surface of at least one of the heat rollers; and

a controller including

an arithmetic processing part controlling whether said double-side lamination system is in a double-side lamination mode in which laminations are carried out on both surfaces of said card, or in a single-side lamination mode in which lamination is carried out on only one of said surfaces of said card, said arithmetic processing part being operatively connected to an output terminal of said at least one temperature sensing element to automatically distinguish between the double-side lamination mode and the single-side lamination mode by comparing measured temperatures of said heat rollers by said at least one temperature sensing element at a predetermined time after turn-on

Docket No. 0044-0273P

Appl. No.: 10/808,514

Art Unit: 1734

Amendment dated November 10, 2004

Reply to Office Action of August 10, 2004

Page 11 of 22

of the power of said double-side lamination system with a predetermined reference temperature;

a card transfer control part;

a laminate film transfer control part;

a cutter drive part;

a clutch drive part;

a sensor signal processing part;

a heater temperature control part for operatively controlling heaters for said pair of heat rollers.

18. (NEW) The system according to claim 17, further comprising a card transfer motor, wherein said card transfer control part controls an operation of the card transfer motor.

19. (NEW) The system according to claim 17, further comprising a laminate film transfer motor, wherein said laminate film transfer control part controls an operation of the laminate film transfer motor.

20. (NEW) The system according to claim 17, further comprising a cutter and an electric clutch, wherein the cutter drive part controls an

Docket No. 0044-0273P

Appl. No.: 10/808,514

Art Unit: 1734

Amendment dated November 10, 2004

Reply to Office Action of August 10, 2004

Page 12 of 22

operation of the cutter and the clutch drive part controls an operation of the electric clutch.

21. (NEW) The system according to claim 17, wherein a first heater roll of said pair of heater rolls comprises a cylindrical central pipe of aluminum material with a silicone rubber roller surface, said first heater roll being rotatably and detachably to a first heater.

22. (NEW) The system according to claim 17, wherein a second heater roll of said pair of heater rolls comprises a cylindrical central pipe of aluminum material with a lubricating film roller surface, said second heater roll being rotatably and detachably connected to a second heater.

23. (NEW) The system according to claim 21, wherein a second heater roll of said pair of heater rolls comprises a cylindrical central pipe of aluminum material with a lubricating film roller surface, said second heater roll being rotatably and detachably connected to a second heater.

24. (NEW) The system according to claim 23, wherein an output terminal of the at least one temperature sensing element is operatively connected to an A-D converter provided in the arithmetic processing unit.

25. (NEW) A method of selectively operating the double-side lamination system according to claim 1, the method comprising the steps of:

measuring at least one temperature of at least one heat roller of the pair of heat rollers with said at least one temperature sensing element;

determining and controlling an operation mode of said system with said arithmetic processing part, said arithmetic processing part controlling whether said double-side lamination system is in a double-side lamination mode in which laminations are carried out on both surfaces of said card, or in a single-side lamination mode in which lamination is carried out on only one of said surfaces of said card, said arithmetic processing part being operatively connected to an output terminal of said at least one temperature sensing element to automatically distinguish between the double-side lamination mode and the single-side lamination mode by comparing measured temperatures of said heat rollers by said at least one temperature sensing element at a predetermined time after turn-on of the power of said double-side lamination system with a predetermined reference temperature;

laminating at least one surface of the card device with the thermocompression bonding device; and

applying heat and pressure with at least one heat roller of the pair of heat rollers.

26. (NEW) The method according to claim 25, wherein if one of said measured temperatures of said heat rollers is lower than said reference temperature, then lamination is not carried out for said surface of said card facing said roller of which said measured temperatures is lower than said reference temperature, and single-side lamination for laminating another surface of said card using another said heat roller is automatically carried out.

27. (NEW) The method according to claim 25, wherein whether said double-side lamination system is in said double-side lamination mode or in said single-side lamination mode is displayed on a control panel of the controller.

28. (NEW) The method according to claim 26, wherein whether said double-side lamination system is in said double-side lamination mode or in

said single-side lamination mode is displayed on a control panel of the controller.

29. (NEW) The method according to claim 25, wherein a drive system control of a laminate film transfer path is automatically changed according to whether said double-side lamination system is in said double-side lamination mode or in said single-side lamination mode.

30. (NEW) The method according to claim 25, wherein said controller distinguishes a type of said heat roller mounted within said system by a value of temperature of said heat roller at said predetermined time after turn-on of the power of said double-side lamination system, and internal control parameters are automatically optimized according to said type of said heat roller.